

What Is Claimed Is:

*Sub A3*  
5 1. An isolated polynucleotide encoding human phosphatidic acid phosphatase wherein said polynucleotide encodes a protein comprising a polypeptide sequence selected from the group consisting of (i) the sequence at amino acid number 1 to amino acid number 284 in Figure 1, (ii) the sequence at amino acid number 1 to amino acid number 285 in Figure 2, and (iii) the sequence at amino acid number 1 to amino acid number 276 in Figure 4.

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15 2. An isolated human phosphatidic acid phosphatase protein, wherein said protein comprises a polypeptide sequence selected from the group consisting of (i) the sequence at amino acid number 1 to amino acid number 284 in Figure 1, (ii) the sequence at amino acid number 1 to amino acid number 285 in Figure 2, and (iii) the sequence at amino acid number 1 to amino acid number 276 in Figure 4.

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25 3. A method of preparing a human phosphatidic acid phosphatase- $\beta$  protein comprising the steps of (i) transforming a host cell with an expression vector comprising a polynucleotide encoding human phosphatidic acid phosphatase, (ii) culturing said transformed host cells which express said protein and (iii) isolating said protein.

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*Sub C4*  
35 4. The method of claim 3, wherein said polynucleotide encoding human phosphatidic acid is selected from the group consisting of (i) the sequence at amino acid number 1 to amino acid number 284 in Figure 1, (ii) the sequence at amino acid number 1 to amino acid number 285 in Figure 2, (iii) the sequence at amino acid number 1 to amino acid number 311 in Figure 3, and (iv) the sequence at amino acid number 1 to amino acid number 276 in Figure 4.

5. A method of dephosphorylating a substrate comprising contacting said substrate with an effective amount of isolated human phosphatidic acid phosphatase protein such that said protein catalyzes the dephosphorylation of said substrate.

6. The method of claim 5, wherein said protein comprises the polypeptide sequence at amino acid number 1 to amino acid number 284 in Figure 1. <sup>(Seq ID NO:2)</sup>

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7. The method of claim 5, wherein said protein comprises the polypeptide sequence at amino acid number 1 to amino acid number 285 in Figure 2. <sup>(Seq ID NO:4)</sup>

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8. The method of claim 5, wherein said protein comprises the polypeptide sequence at amino acid number 1 to amino acid number 311 in Figure 3. <sup>(Seq ID NO:6)</sup>

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9. The method of claim 5, wherein said protein comprises the polypeptide sequence at amino acid number 1 to amino acid number 276 in Figure 4. <sup>(Seq ID NO:8)</sup>

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10. The method of claim 5, wherein said substrate is selected from the group consisting of phosphatidic acid, lysophosphatidic acid, ceramide 1-phosphate, and sphingosine 1-phosphate.

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11. The method of claim 5, wherein said contacting is effected in vitro, and further comprises the step of isolating said dephosphorylated substrate.

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12. The method of claim 5, wherein said contacting step occurs in vivo and is effected by the administration of said human phosphatidic acid phosphatase to a mammal in need thereof.

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